

Detector R&D for an Electron Ion Collider

12th Advisory Committee Meeting
January 26-27, 2017

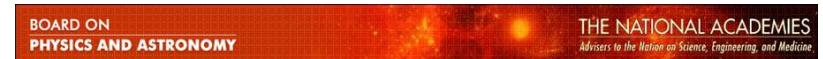
BNL

Thomas Ullrich (BNL)
January 26, 2017



EIC - Status (I)

- Nation Academy Review:
 - ▶ Charge is public
 - ▶ Committee is assembled
 - Ani Aprahamian (University of Notre Dame)
 - Gordon Baym (U. Illinois at Urbana-Champaign)
 - ▶ Deadline: ~March 2018
 - ▶ First meeting: 2/1/2017
 - ▶ Preparation Team
 - 4 groups addressing the 4 question in the charge



U.S.-Based Electron Ion Collider Science Assessment

Statement of Task:

The committee will assess the scientific justification for a U.S. domestic electron ion collider facility, taking into account current international plans and existing domestic facility infrastructure. In preparing its report, the committee will address the role that such a facility could play in the future of nuclear physics, considering the field broadly, but placing emphasis on its potential scientific impact on quantum chromodynamics.

In particular, the committee will address the following questions:

- What is the merit and significance of the science that could be addressed by an electron ion collider facility and what is its importance in the overall context of research in nuclear physics and the physical sciences in general?
- What are the capabilities of other facilities, existing and planned, domestic and abroad, to address the science opportunities afforded by an electron-ion collider? What unique scientific role could be played by a domestic electron ion collider facility that is complementary to existing and planned facilities at home and elsewhere?
- What are the benefits to U.S. leadership in nuclear physics if a domestic electron ion collider were constructed?
- What are the benefits to other fields of science and to society of establishing such a facility in the United States?

<https://www8.nationalacademies.org/cp/projectview.aspx?key=49811>

EIC - Status (II)

- EIC User Group
 - ▶ Institutional Board in place
 - chair Christine Aidala (Michigan)
 - ▶ Steering Committee almost complete
 - Chair: Abhay Deshpande (SB)
 - Vice-Chair: Bernd Surrow (Temple)
 - Regular Members: John Arrington, Charles Hyde, Marco Radici
 - BNL Representative: Elke Aschenauer
 - JLAB Representative: Rik Yoshida
 - Representative for Asian groups: in progress
 - Representative for European groups: in progress
 - ▶ Institutional Board in place
 - ▶ Physics and other technical Working Groups are being organized

EIC Detector R&D Program

- FY17 was tight - given the number of projects
- Progress Reports paint in parts an alarming picture
- Coordinator and Committee are aware of this
- Two ways to confront situation
 - ▶ Work for more funding from DOE (=> next slide)
 - ▶ Consider changes to the program

Detector R&D and DOE (I)

- **November 22, 2016 visit DOE**
- Participant R&D: Marcel, Glenn, Abhay, TU
- Participant R&D:
 - ▶ Timothy J. Hallman (Associate Director of Science for NP)
 - ▶ Gulshan Rai (Medium Energy Nuclear Physics)
 - ▶ Jehanne Gillo (Director of Facilities & Proj. Management Div.)
 - ▶ Manouchehr Farkhondeh (Advanced Technology R&D)
 - ▶ Michelle Shinn (Industrial Concepts)
 - ▶ and 3 more ...
- Abhay talked on EIC User Group, TU on R&D program in general, Marcel on achievements

Detector R&D and DOE (II)

- We asked for a ramp up to **\$4M within 4** years
- We got a quite positive response overall, especially Tim seemed to appreciate our visit.
- Still funding of FY18 is totally unknown given the new administration and how much room DoE Office of Science will have

PLEASE: In you grant proposals and annual reports mention the program and give credit to it. DOE needs to be aware of it!

FY2017 Funding Period

- 11 Projects are funded in FY17
 - ▶ eRD1 - Calorimeter consortium
 - ▶ eRD2 - Magnetic Cloaking
 - ▶ eRD3 - Fwd Tracking
 - ▶ eRD6 - Tracking consortium
 - ▶ eRD14 - PID consortium
 - ▶ eRD15 - Compton spectrometer
 - ▶ eRD16 - Fwd Silicon tracking
 - ▶ eRD17 - Simulations
 - ▶ eRD18 - Central Si tracking
 - ▶ eRD19 - Machine background
 - ▶ eRD20 - Software/Analysis consortium

R&D Projects: Day-to-Day Business

- R&D funds are not grants but are handled via contracts (with BNL)
- Only because the Committee assigned funds it does not mean you get it w/o paperwork
- Contact person for all contract issues is Liz Mogavero (mogavero@bnl.gov)
- If someone is awarded funding (projects or subgroups) who has not had funding before please get in touch with Liz and she will send them examples of the required paperwork.
- FY boundaries are busy - start getting in touch with Liz as early as possible (especially when postdoc salaries are involved)
 - We are discussing changing the funding cycle from FY to calendar year but nothing is decided yet
- BNL contract office is requiring
 - ▶ Detailed **statement of work**
 - ▶ Detailed, understandable, in time submitted bills

EIC R&D Advisory Committee

Standing Advisory Committee:

Marcel Demarteau* (Argonne)

Carl Haber (LBNL)

Peter Krizan (Ljubljana)

Ian Shipsey (Purdue)

Rick Van Berg (UPenn)

Jerry Va'vra (SLAC)

Glenn Young (JLab)

*chair



Please use coffee breaks for informal discussion with committee members

Jerry couldn't make it this time

Due to funding situation no dinner with committee *and* contact persons this time. Sorry!

Agenda - Thursday, January 26

Thursday, January 26, 2017			
08:00	Committee: Breakfast and Executive Session - Physics Department (bldg. 510) Room 2-160		
All day: Physics Department (bldg. 510) Large Seminar Room			
	Title	Speaker	Slides
09:00	Welcome and Overview	Thomas Ullrich (15+5)	
09:20	eRD6 Progress Report: Tracking Consortium	Klaus Dehmelt (35+10)	
10:05	eRD2 Progress Report: Magnetic Field Cloaking Device	TBD (20+10)	
10:35	Coffee Break		
10:55	eRD3 Progress Report: Fast and lightweight EIC integrated tracking system	Matt Posik (20+10)	
11:25	eRD1 Progress Report: Calorimeter Consortium	TBD (30+10)	
12:05	Lunch Break (Committee working lunch in room 2-160)		
13:50	eRD14 Progress Report: PID Consortium	Pawel Nadel-Turonski (35+10)	
14:35	eRD15 Progress Report: Compton Polarimetry	Alexandre Camsonne (20+10)	
15:05	eRD16 Progress Report: Forward Backward Si Tracking	TBD (20+10)	
15:35	Coffee Break		
15:55	eRD18 Progress Report: Central Si Tracking	TBD (20+10)	
16:25	Open Discussion on the program, ideas for improving the program, future perspectives and goals.		
16:55	Closed Discussion with eRD6/eRD3 in room 2-160		
17:25	Executive Session in room 2-160		
19:00	Dinner (Committee only)		



Agenda - Friday, January 27

Friday, January 27, 2017			
08:00	Committee: Breakfast and Executive Session - Physics Department (bldg. 510) Room 2-160		
All day: Physics Department (bldg. 510) Large Seminar Room			
	Title	Speaker	Slides
9:00	LoI: GEM based transition radiation tracker	Julia Furletova (15+5)	
9:20	eRD17 Progress Report: DPMJetHybrid Simulations	Mark Baker (20+10)	
9:50	eRD19 Progress Report: Background Simulations	Richard Petti (20+10)	
10:20	eRD20 Progress Report: Software/Analysis Consortium	Markus Diefenthaler (20+10)	
10:50	Coffee Break		
11:10	Homework Presentations	TBD (60)	
12:10	Committee Executive Session & Working Lunch		
14:15	Public close-out (room 2-160)		

Many Thanks ...

- **Liz Mogavero** for dealing with the contracts and BNL bureaucracy
- **Pia Zurita** for helping with the meeting and A/V
- The **EIC R&D Committee** for their enthusiasm and hard work to make the program work, especially to Marcel without whom I wouldn't know how all this would work
- To **all participants** for the interest and engagement in the projects and their patience